Course Outcomes Guide

for

BIO101 General Biology

BIO113 Principles of Biology

Course Title: Bio101/Bio113   Date: Fall 2012

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Expected Learning Outcomes:
1. Students will access, process, analyze and synthesize scientific information.
2. Students will use technology to gain knowledge and understanding of specific topics in biology
3. Students will employ verbal and writing skills to demonstrate knowledge and understanding of specific topics in biology.
4. Students will solve numeric problems in analyze biological data.
5. Students will accurately depict and interpret graphical data.
6. Students will apply the scientific method and scientific reasoning to generate and evaluate hypothesis, experiments, data and conclusions.

Assessment:
1. a) Students complete **15 homework assignments** that consist of guided learning activities through an interactive website (www.mastering biology.com) supplied by the publisher of the text book. **Homework assessments** are collectively worth 20% of their 'lecture' grade.

   b) Students use **electronic media tutorials** (ie. Graphing Module) online, or in the Science Learning Center. Student knowledge and understanding is evaluated on the **Biology Common Final Exam**.

   c) Students access course information, including lecture notes and quizzes, online through the **Blackboard learning system**. Students who do not use the Bb learning system are unable to access course information, homework assignments, and quizzes to earn a minimum passing grade.

2. a) Students will complete **4 class exams, ~15 online quizzes**, and a **Common Final Exam**. These exams consist of a variety of question types and difficulties. Along with homework assignments, these assessments account for 65% of the final grade.

   b) Students complete **lab reports** and **lab quizzes** throughout the semester. These lab assessments are worth 35% of the final course grade

3. Students are assessed through **essay questions embedded in lab reports, assignments, and quizzes**

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4. Students use calculations to analyze and statistically evaluate data they generate through lab activities. Lab activities are evaluated through **lab reports, graphing assignments, and quizzes**.

5. a) Students complete **~10 graphing assignments** throughout the semester in which they are required to graphically display data and interpret results and conclusions indicated by their graphed data.

   b) Students are asked to evaluate graphed data on **class exams, lab quizzes, and the Common Final Exam.**

Validation:

The common final exam was validated in 2011 when analysis showed that the average correlation between CFE scores and final course grade is + 0.47 indicating that there is a good correlation between student performance on the CFE and the final course grade.

In the Spring of 2012 data from all Bio101/113 sections offered in the 2011-2012 academic year were compared to identify if all sections were achieving an average passing score on the CFE. The average CFE score for all sections was 68.31. All sections scored within +/- 10% of this average, indicating no significant differences due to instructor, class size, or student learning. No sections had an average CFE score below the minimum passing grade of 65% (see Table 1. Below).

Item Analysis was conducted to assess student's ability to meet General Education Student Learning Outcomes. The mean for student scores on these items/questions was 73.06. All sections were within +/- 10% of this mean.

Table 1. Mean CFE scores and General Education Assessment scores by section (Bio101/ 2011-2012)

semester	course-section	number of students	mean exam score	mean score for gen. ed. questions	instructor
spring 2012	Bio101-	35	64.52	74.29	Ashby
spring 2012	Bio101-	33	64.68	71.52	Ashby
spring 2012	Bio101-	17	69.1	73.81	Stein
fall 2011	Bio101-M01/02				Nickerson
fall 2011	Bio101-M03/04	36	67.79	73.24	Nickerson
fall 2011	Bio101-	21	69.37	73.29	Stein
fall 2011	Bio113-01	19	71.79	75.83	Nickerson
summer 2011	Bio113-01	18	71.18	69.47	Peisen
mean all sections			68.31	73.06	

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Budget Justification:

Professional Development/Training is needed to learn how to operate the scantron machine for data collection.

Statisticians need to work closely with faculty to statistically analyze the SLOA data collected via scantron machine.

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